

Homework 3 - Math 142, Frank Thorne (thornef@mailbox.sc.edu)

Due Friday, September 13

As always, please show your work and explain yourself clearly.

Special instructions. For any problem that can be solved by partial fractions where you have *repeated factors* or *irreducible quadratic factors*, say that it can be solved by partial fractions and **stop working**.

Thompson: Read Ch. 6-7 of Thompson. Describe Thompson's treatment of the product and quotient rules, and compare and contrast them with Stewart's.

Required problems:

(a) Evaluate

$$\int \sin^2(x) dx.$$

(b) Evaluate

$$\int \cos^2(x) dx.$$

(c) Stewart, Ch. 7.3, 1-14. **For each problem, draw the relevant triangle.**

(d) Stewart, Ch. 7.4, 1, 2a. (**Do** determine the numerical values of the coefficients.)

(e) Stewart, Ch. 7.4, 7-14, 39-42, 44 (previously also 43), 51, 62.

(f) Stewart, 7.5, 5-18 excluding 13.

Additional problems:

(a) Stewart, Ch. 7.3, 15-20.

(b) Stewart, Ch. 7.4, 4a, 5a, 17-22.

(c) Stewart, Ch. 7.5, 19-24.

Bonus (2 points): Give at least two different integrals which the techniques you have learned *don't* allow you to evaluate. Explain why not.